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(FILE 'HOME' ENTERED AT 08:46:57 ON 03 OCT 2005)

FILE 'CAPLUS' ENTERED AT 08:49:17 ON 03 OCT 2005  
ACTIVATE EXTRACT/Q

L1 QUE (EXT. OR EXTD. OR EXTG. OR EXTN.)/IA  
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ACT SEPN/Q

L2 QUE (SEP. OR SEPD. OR SEPG. OR SEPN.)/IA  
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L3 857138 S L1  
L4 1194550 S L2

FILE 'REGISTRY' ENTERED AT 08:50:05 ON 03 OCT 2005  
L5 2 S LUTEIN/CN

FILE 'CAPLUS' ENTERED AT 08:50:26 ON 03 OCT 2005  
L6 6279 S L5 OR LUTEIN/IA

=> s 13(4w)16; s 12(4w)16  
L7 52 L3(4W)L6

272626 SEP./IA  
(SEP/IA)  
445007 SEPD./IA  
(SEPD/IA)  
91362 SEPG./IA  
(SEPG/IA)  
553262 SEPN./IA  
(SEPN/IA)  
L8 54 L2(4W)L6

=> s ?oleoresin/ia  
L9 2006 ?OLEORESIN/IA

=> s 17 and 19  
L10 4 L7 AND L9

=> s 18 and 19  
L11 0 L8 AND L9

=> d l10 tot ibib abs

L10 ANSWER 1 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN  
ACCESSION NUMBER: 2004:1126863 CAPLUS  
DOCUMENT NUMBER: 142:62642  
TITLE: Isolation of lutein from alfalfa  
INVENTOR(S): Hoffman, Mark; Baugh, David; Ahern, Michael; Walsh,  
David  
PATENT ASSIGNEE(S): USA  
SOURCE: U.S. Pat. Appl. Publ., 21 pp., Cont.-in-part of U.S.  
Ser. No. 688,776.  
CODEN: USXXCO  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 3  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004258782	A1	20041223	US 2003-696730	20031029
US 2004176475	A1	20040909	US 2003-688776	20031017
WO 2004080933	A2	20040923	WO 2004-US6721	20040305
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.: US 2003-452565P P 20030307  
US 2003-688776 A2 20031017  
US 2003-696730 A 20031029

AB The present invention provides a process for an industrial scale extraction and purification of xanthophylls (e.g., lutein and zeaxanthin) from plant material (e.g., alfalfa or other leafy green crops having high levels of chlorophyll). The process involves harvesting lutein rich alfalfa, extracting an **oleoresin** from the alfalfa leaves, saponifying the **oleoresin**, **extg.** and **extg. lutein** using a series of solvent extns. specific for **oleoresin** obtained from alfalfa or other leafy green plants.

L10 ANSWER 2 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:780645 CAPLUS  
DOCUMENT NUMBER: 141:282761  
TITLE: Isolation of lutein from Alfalfa  
INVENTOR(S): Hoffman, Mark; Baugh, David; Ahern, Michael; Walsh, David  
PATENT ASSIGNEE(S): Nu-Tein, LLC, USA  
SOURCE: PCT Int. Appl., 51 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 3  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004080933	A2	20040923	WO 2004-US6721	20040305
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

US 2004176475	A1	20040909	US 2003-688776	20031017
US 2004258782	A1	20041223	US 2003-696730	20031029

PRIORITY APPLN. INFO.: US 2003-452565P P 20030307  
US 2003-688776 A 20031017  
US 2003-696730 A 20031029

AB The present invention provides a process for an industrial scale extraction and

purification of xanthophylls, e.g., lutein and zeaxanthin, from a plant material, e.g., alfalfa or other leafy green crops having high levels of chlorophyll. The process involves harvesting lutein rich alfalfa, extracting an **oleoresin** from the alfalfa leaves, saponifying the **oleoresin**, **extg.** and **extg.** **lutein** using a series of solvent extns. specific for **oleoresin** obtained from alfalfa or other leafy green plants. Lutein was isolated from Alfalfa juice and purified by saponification

L10 ANSWER 3 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 2004:739989 CAPLUS  
 DOCUMENT NUMBER: 141:230754  
 TITLE: Compositions containing lutein and zeaxanthin isolated from leafy green vegetables  
 INVENTOR(S): Hoffman, Mark; Baugh, David; Ahern, Michael; Walsh, David  
 PATENT ASSIGNEE(S): USA  
 SOURCE: U.S. Pat. Appl. Publ., 20 pp.  
 CODEN: USXXCO  
 DOCUMENT TYPE: Patent  
 LANGUAGE: English  
 FAMILY ACC. NUM. COUNT: 3  
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2004176475	A1	20040909	US 2003-688776	20031017
US 2004258782	A1	20041223	US 2003-696730	20031029
WO 2004080933	A2	20040923	WO 2004-US6721	20040305
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				

PRIORITY APPLN. INFO.:  
 US 2003-452565P P 20030307  
 US 2003-688776 A2 20031017  
 US 2003-696730 A 20031029

AB The present invention provides a process for an industrial scale extraction and purification of xanthophylls (e.g., lutein and zeaxanthin) from plant material (e.g., alfalfa or other leafy green crops having high levels of chlorophyll). The process involves harvesting lutein rich alfalfa, extracting an **oleoresin** from the alfalfa leaves, saponifying the **oleoresin**, **extg.** and **extg.** **lutein** using a series of solvent extns. specific for **oleoresin** obtained from alfalfa or other leafy green plants. The **extd.** **lutein** and zeaxanthin crystals can be used in pharmaceutical products to treat ulcers, cancers, heart diseases and macular degeneration. The **extd.** **lutein** and zeaxanthin crystals can also be used in neutraceutical and cosmetic formulations of powder, tablet, capsule, gel and liquid or solid.

L10 ANSWER 4 OF 4 CAPLUS COPYRIGHT 2005 ACS on STN  
 ACCESSION NUMBER: 1994:578321 CAPLUS  
 DOCUMENT NUMBER: 121:178321  
 TITLE: Method for isolation of vegetable oleoresins producible by hexane extraction

10/696,730

INVENTOR(S): Pommer, Klaus  
PATENT ASSIGNEE(S): Novo Nordisk A/S, Den.  
SOURCE: PCT Int. Appl., 17 pp.  
CODEN: PIXXD2  
DOCUMENT TYPE: Patent  
LANGUAGE: English  
FAMILY ACC. NUM. COUNT: 1  
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9413743	A1	19940623	WO 1993-DK422	19931216

W: US

RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

PRIORITY APPLN. INFO.: DK 1992-1510 A 19921217

AB The vegetable oleoresins such as pigments are prepared by extraction of vegetable

starting products with a mixture of water and an organic acid immiscible with water. The organic acid is selected from straight-chained saturate C6-12 fatty acids. Optionally, a cell-degrading enzyme such as SPS-ase is used in the extraction of oleoresins. In this manner the use of hexane or other environmental dangerous solvents is avoided, and also, the yield of oleoresins is improved. Extn. of lutein from Tagetes erecta was shown.